

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Cancelled)

2. (Currently amended) A method of increasing the secretion of a heterologous protein in a fungal cell, comprising

inducing an unfolded protein response (UPR) by increasing the presence of a HAC1 UPR-modulating protein in said fungal cell, comprising transforming the fungal cell with a nucleic acid encoding a yeast or filamentous fungal HAC1 UPR-modulating protein comprising a DNA binding domain consisting of that has:

a) at least 90% sequence identity to the DNA binding domain of amino acid residues 84 – 147 of SEQ ID NO: 5;

b) at least 90% sequence identity to the DNA binding domain of amino acid residues 53 – 116 of SEQ ID NO: 6 or

c) the DNA binding domain of amino acid residues 45 –109 of SEQ ID No:19, and

increasing secretion of the heterologous protein relative to secretion of the heterologous protein in a parental cell, wherein said fungal cell is a yeast or filamentous fungal cell.

3. (Original) The method of Claim 2 wherein said HAC1 protein is constitutively produced.

4. (Cancelled)

5. (Original) The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from a cell selected from the group consisting of *Aspergillus*, *Trichoderma*, *Saccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Pichia*, *Hansenula*, *Fusarium*, *Neurospora*, and *Penicillium*.

6. (Original) The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from yeast.

7. (Original) The method of Claim 6 wherein said yeast is *Saccharomyces cerevisiae*.

8. (Original) The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from filamentous fungi.

9. (Original) The method of Claim 8 wherein said fungi is from *Trichoderma*.

10. (Original) The method of Claim 8 wherein said fungi is *Trichoderma reesei*.

11. (Original) The method of Claim 8 wherein said fungi is from *Aspergillus*.

12. (Original) The method of Claim 8 wherein said fungi is *Aspergillus nidulans*.

13. (Original) The method of Claim 8 wherein said fungi is *Aspergillus niger*.

14- 25. (Cancelled)

26. (Previously presented) The method of Claim 2 wherein said yeast or filamentous fungal cell is selected from the group consisting of *Aspergillus spp.*, *Trichoderma spp.*, *Saccharomyces cerevisiae*, *Schizosaccharomyces pombe*, *Kluyveromyces spp.*, *Pichia spp.*, *Hansenula polymorpha*, *Fusarium spp.*, *Neurospora spp.*, and *Penicillium spp.*

27. (Original) The method of Claim 2 wherein said fungal cell is a yeast cell.

28. (Original) The method of Claim 27 wherein said yeast is *Saccharomyces cerevisiae*.

29. (Original) The method of Claim 2 wherein said fungal cell is a filamentous fungi.
30. (Original) The method of Claim 29 wherein said fungi is from *Trichoderma*.
31. (Original) The method of Claim 29 wherein said fungi is *Trichoderma reesei*.
32. (Original) The method of Claim 29 wherein said fungi is from *Aspergillus*.
33. (Original) The method of Claim 29 wherein said fungi is *Aspergillus nidulans*.
34. (Original) The method of Claim 29 wherein said fungi is *Aspergillus niger*.
- 35-82. (Cancelled)
83. (Withdrawn) A fungal cell containing a heterologous nucleic acid encoding a yeast or filamentous fungi protein having unfolded protein response modulating activity and a heterologous nucleic acid encoding a protein of interest to be secreted, wherein said fungal cell is a yeast or filamentous fungal cell.
84. (Withdrawn) The cell of Claim 83 wherein said protein having unfolded protein response modulating activity is a fungal HAC1.
85. (Withdrawn) The cell of Claim 83 wherein said protein of interest is selected from the group consisting of lipase, cellulase, endo-glucosidase H, protease, carbohydrase, reductase, oxidase, isomerase, transferase, kinase, phosphatase, alpha-amylase, glucoamylase, lignocellulose hemicellulase, pectinase and ligninase.
86. (Cancelled)

87. (Withdrawn) The cell of Claim 83 wherein said protein having unfolded protein response modulating activity is a yeast HAC1.

88. (Cancelled)

89. (Currently amended) The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain consisting of that has at least 90% identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6.

90. (Currently amended) The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain consisting of that has at least 95% identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID No: 5 or b) amino acid residues 53 – 116 of SEQ ID No: 6.

91. (Currently amended) The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain consisting of that has the DNA binding domain of amino acid residue positions 84 to 147 of SEQ ID NO: 5.

92. (Currently amended) The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain consisting of that has the DNA binding domain of amino acid residue positions 53 to 116 of SEQ ID NO: 6.

93. (Previously presented) The method of Claim 2, wherein said heterologous protein is selected from the group consisting of lipases, cellulases, endo-glucosidase H, proteases, carbohydrases, reductases, oxidases, isomerases, transferases, kinases, phosphatases, alpha-amylases, glucoamylases, hemicellulases, pectinases and ligninases.

94. (Previously presented) The method of Claim 93, wherein the heterologous protein is a

protease, cellulase, glucoamylase or alpha amylase.

95. (Currently amended) The method of Claim 2, wherein the fungal cell is a *Trichoderma* or *Aspergillus* fungal cell, the UPR-modulating protein comprising a DNA binding domain consisting of that has at least 90% sequence identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6 and the heterologous protein is selected from the group consisting of proteases, cellulases, glucoamylases, and alpha amylases.

96. (Currently amended) The method of Claim 95, wherein the fungal cell is a *Trichoderma* cell and the UPR-modulating protein comprises a DNA binding domain consisting of that has at least 95% sequence identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6.

97. (Currently amended) The method of Claim 95, wherein the fungal cell is an *Aspergillus* cell and the UPR-modulating protein comprises a DNA binding domain consisting of that has at least 95% sequence similarity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5; b) amino acid residues 53 – 116 of SEQ ID NO: 6.

98. (Previously presented) The method of Claim 2, further comprising a promoter operably linked to the nucleic acid encoding the HAC1 UPR-modulating protein, said promoter selected from the group consisting of cbh1, gpdA, adh1 and pgk1.

99. (Currently amended) The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain consisting of having the DNA binding domain of amino acid residue positions 45 to 109 of SEQ ID NO: 19.